

service manual

450

AMPLIFIER

MusicParts.com

acoustic control corporation

7949 WOODLEY AVENUE
VAN NUYS, CA 91406
(213) 997-6631

MODEL 450 PHYSICAL SPECIFICATIONS

1. CONNECTIONS

Inputs	2 (1/4" phone jacks, 2 conductor)
Speaker Outputs	2 (1/4" phone jacks, 2 conductor)
Line Outputs	2 (1/4" phone jacks, 2 conductor)
Booster Output	1 (1/4" phone jack, 2 conductor)
In/Out Accessory	1 (1/4" phone jack, 3 conductor)
Foot Switch Socket	1 (1/4" phone jack, 3 conductor)
Physical Dimensions	24-5/8"Wx7"Hx12-1/2"D
Shipping Weight	30 lbs. + 5 lbs. shipping carton

2. CONTROLS

Volume	Rotary Potentiometer
Treble	Cut and Boost Rotary Potentiometer
Mid-Range	Cut and Boost Rotary Potentiometer
Bass	Cut and Boost Rotary Potentiometer
Distort	Rotary Potentiometer
Auxiliary Volume	Rotary Potentiometer
Bright Switch	Rocker Switch
Lead/Bass	Rocker Switch
Ground Reverse	Rocker Switch
Graphic Equalizer	5 Section (Each section is a slide potentiometer with detent in the flat position.)
Power On/Off Switch and Pilot Light	Push-On/Push-Off Switch
Auxiliary Outlet	3 Conductor Grounded Standard
Fuse	3 Amps Slo-Blo or 5 Amps Slo-Blo

MODEL 450 ELECTRICAL SPECIFICATIONS

1. OUTPUT

Power output (continuous) across 4 ohm load	
@ less than 5% distortion	170 Watts RMS
Peak power output (instantaneous) across	
4 ohm load @ 5% distortion	450 Watts
Power output (continuous) across 2 ohm load	
@ 5% distortion	170 Watts RMS
Peak power output (instantaneous) across	
2 ohm load @ 5% distortion	400 Watts

2. GAIN (All controls flat volume max.)

Preamp gain (from input to line output)	38 dB or 80X
Total gain	63.5 dB or 1500X
Power amplifier gain from ext. inputs speaker output	55 dB or 500X

3. SENSITIVITY

Input voltage for maximum output	Input 1: 15 mv RMS
	Input 2: 45 mv RMS
Input voltage capability (maximum)	Input 1: 510 mv RMS
	Input 2: 1.6V RMS
Nominal Input impedance	Input 1: 470K OHMS
	Input 2: 69K OHMS

4. NOISE (all controls flat, inputs shorted)

Noise-to-full-output ratio — volume minimum	-78 dB below full output
— volume maximum	-78 dB below full output

5. FREQUENCY RESPONSE

At 10 Watt level	-3dB, 27 Hz to 21K Hz
Power bandwidth 1/2 power point	30 Hz to 18K Hz

MODEL 450 ELECTRICAL SPECIFICATIONS, continued

6. AUXILIARY OUTPUTS

Output Voltage	250 mv RMS
Impedance	5000 ohms
Booster Output	275 mv RMS
Impedance	1 K ohms

7. DISTORTION CIRCUIT (all controls flat, distortion control and volume control max.)

Minimum Input Required to Clip Power Amp	425 Microvolts
--	----------------

8. RANGE OF TONE CONTROLS

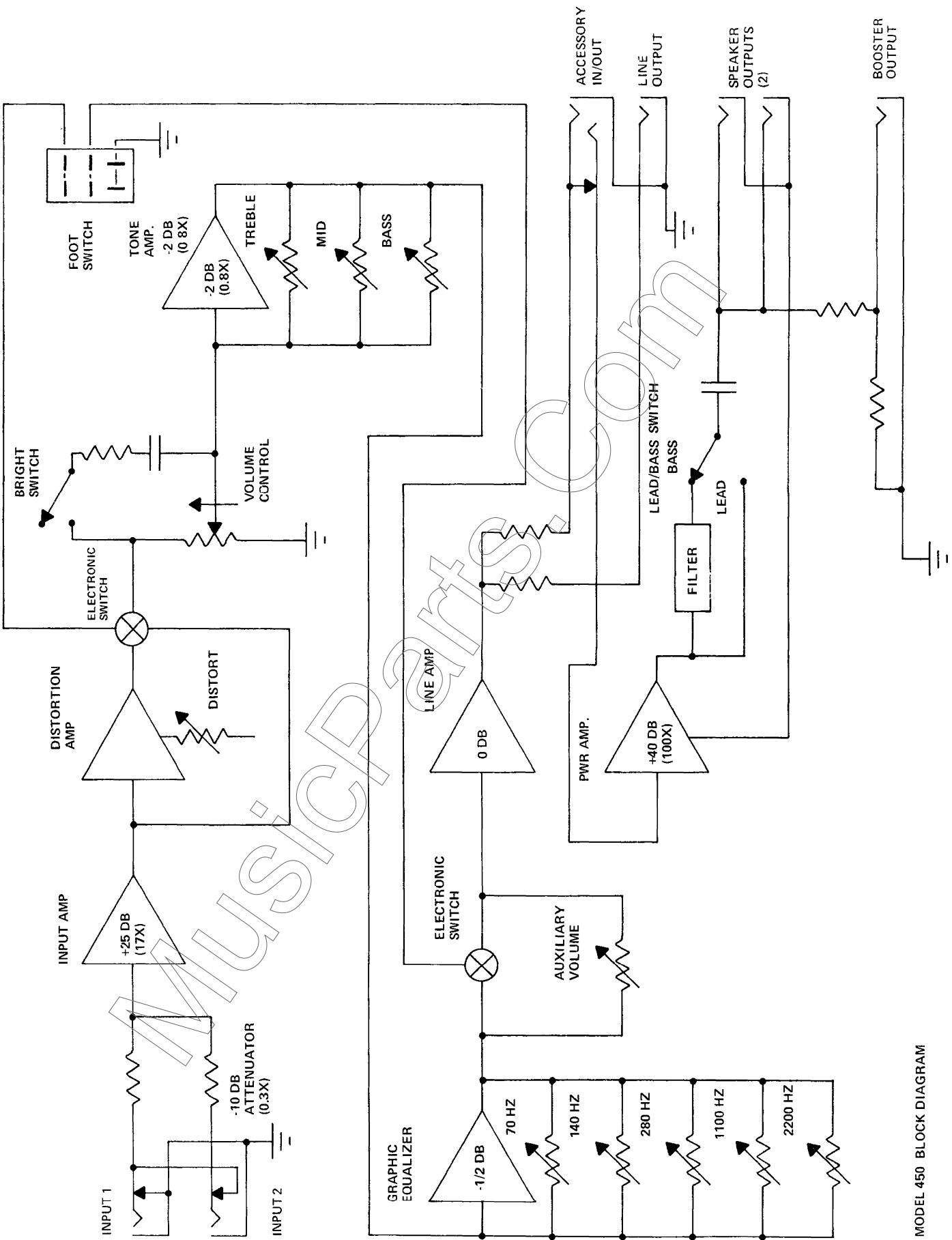
Bass	+15 dB Boost, -15 dB cut @ 50 Hz
Treble	+15 dB Boost, -25 dB cut @ 10KHz
Mid-Range	+7 dB Boost, -30 dB cut @ 400 Hz
Bright Switch Boost	6 dB per octave from 200 Hz to 5 KHz

9. RANGE OF GRAPHIC EQUALIZER

Section 1	±16 dB @ 70 Hz
Section 2	±16 dB @ 140 Hz
Section 3	±16 dB @ 280 Hz
Section 4	±16 dB @ 1100 Hz
Section 5	±16 dB @ 2200 Hz

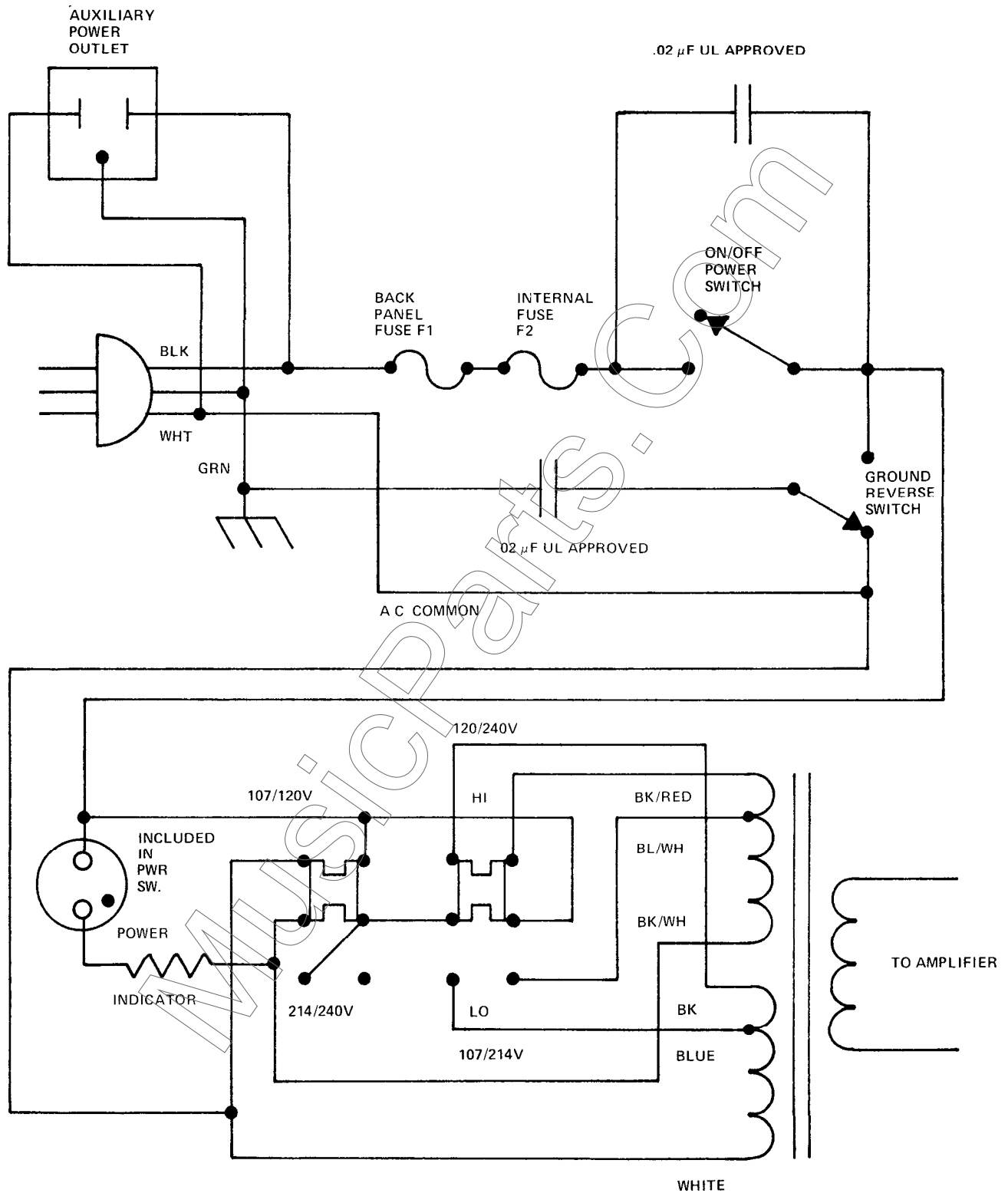
**AMPLIFIER LINE VOLTAGE REQUIREMENTS
FOR OPERATION IN U.S.A. AND FOREIGN COUNTRIES**

1. 107 Volts Line Used when supply line is 100V – 50/60 Hz
Use 5A, 125V Slo-Blo Fuse as in Japan or
Used when supply line is rated 110V
CAUTION: Do not use 107V tap with
120V line
2. 120 Volts Line Used in U.S.A. or where Line Voltage
Use 5A, 125V Slo-Blo Fuse is specified as 117V or 120V –
50/60 Hz Lines
3. 214 Volts Line Used where Line is specified as 210V or
Use 3A, 250V Slo-Blo Fuse 220V AC – 50/60 Hz
(mostly European Countries)
CAUTION: Do not use this tap with 225V,
230V or 240V Lines
4. 240 Volts Line Used with 225, 230, and 240 Volts –
Use 3A, 250V Slo-Blo Fuse 50/60 Hz Lines
(many European countries)

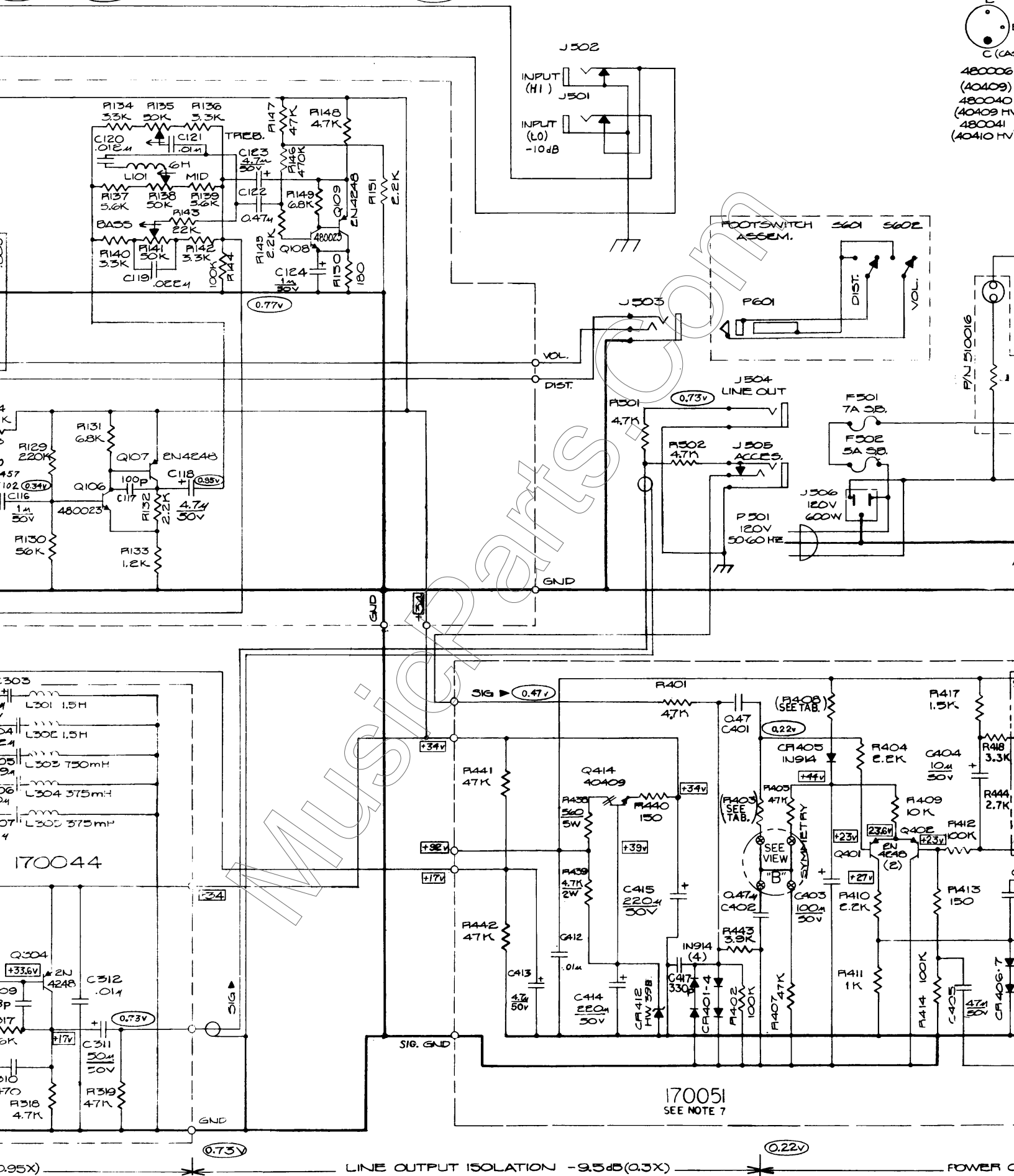
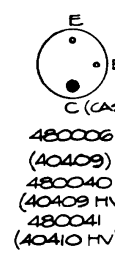


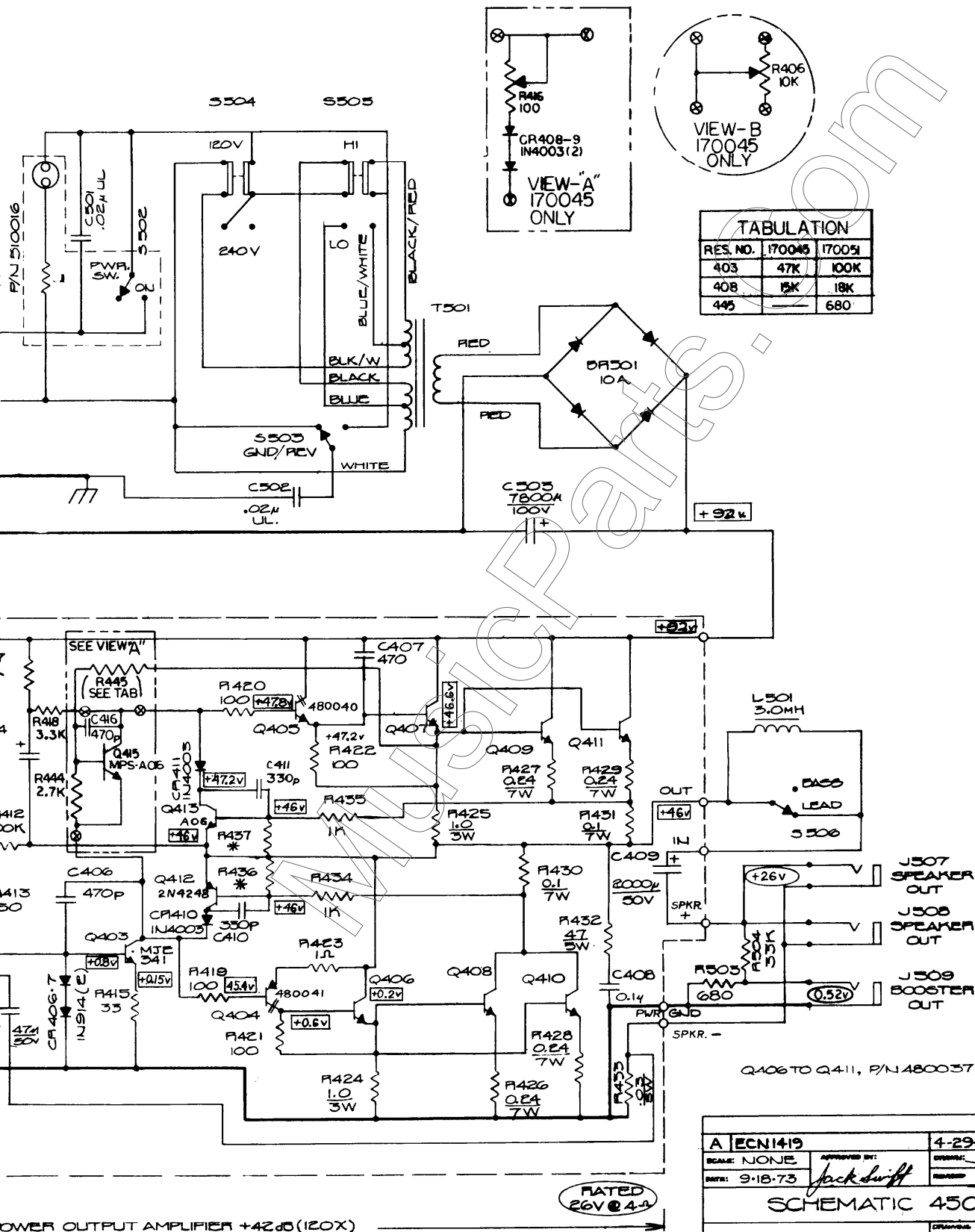
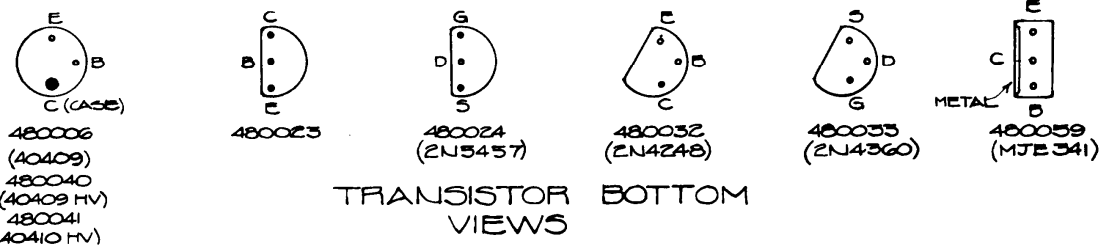
MODEL 450 BLOCK DIAGRAM

A.C. WIRING DIAGRAM MODEL 450

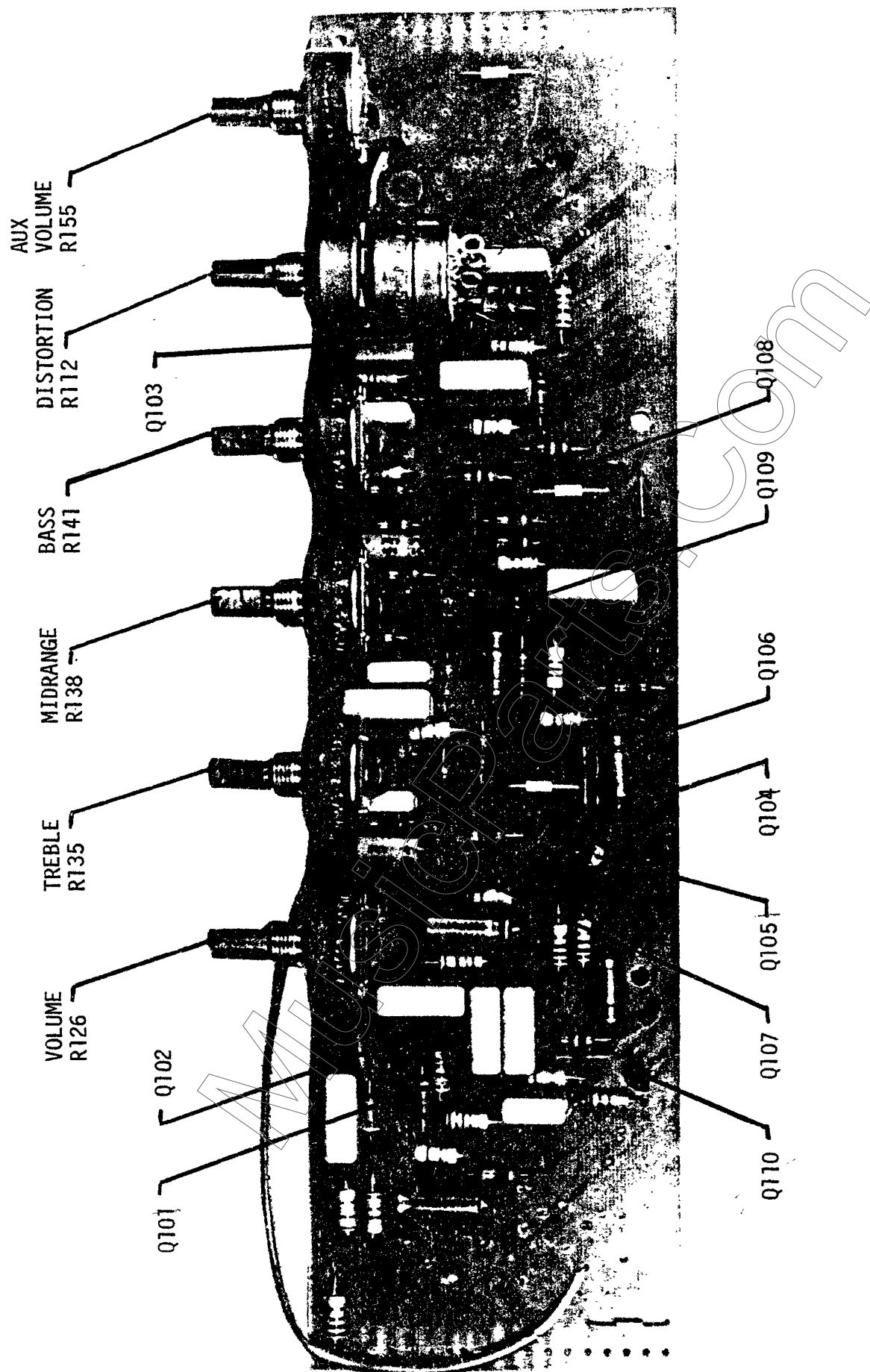


F1: FOR 107-120V, USE 5A, 125V SLO BLO
FOR 214-240V, USE 3A, 250V SLO BLO



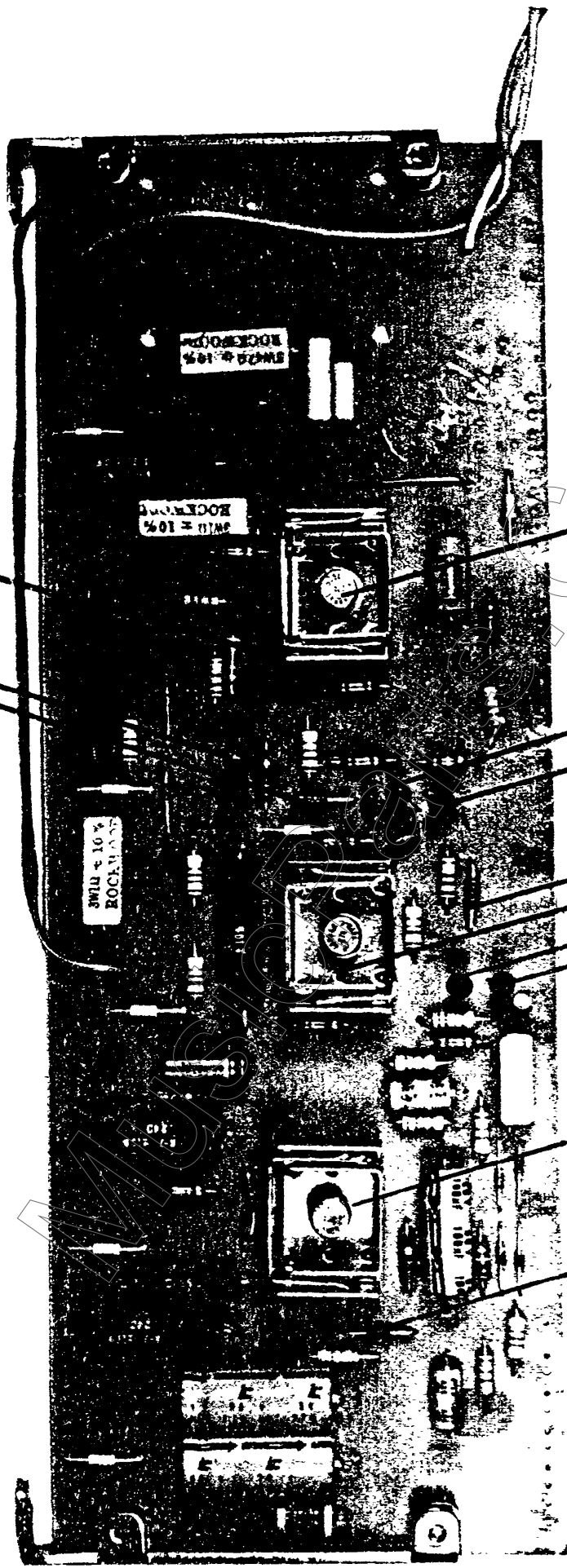


A ECN1419		4-29-74 WS
SCHEM: NONE	APPROVED BY: <i>Jack Swift</i>	DRAWN: JR
DATE: 9-18-73		REVIEW:
SCHEMATIC 450		
ACOUSTIC CONTROL		CHANGES NO. 1447-A



PICTORIAL
MODEL 450 - PREAMP ASSEMBLY 830023
SCHEMATIC 1447A

CR410 Q415 Q403



Q404

Q412

Q413

CR411

Q405

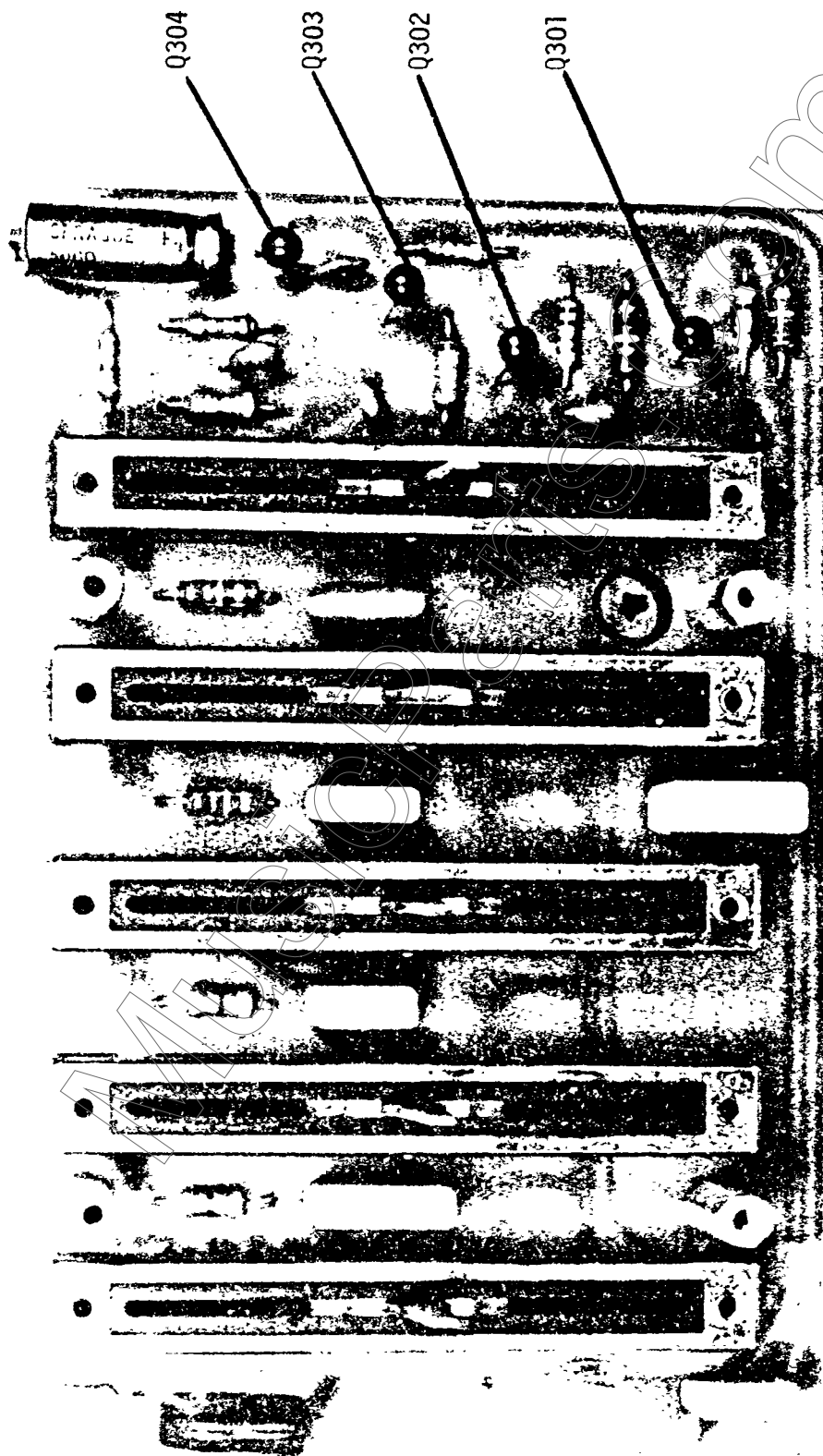
Q401

Q402

Q414

CR412

PICTORIAL
MODEL 450 - POWER AMP CIRCUIT BOARD ASSEMBLY 830029
SCHEMATIC 1447A



PICTORIAL
MODEL 450 - GRAPHIC EQ ASSEMBLY 830025
SCHEMATIC 1447A

PARTS LIST
MODEL 450 - PREAMP ASSEMBLY 830023
SCHEMATIC 1447A

Schematic Reference	DESCRIPTION	Acoustic Part No.	Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB1	Printed Circuit Board	170043	R 109	Resistor, 330 ohm, 1/2 watt	476133
Q 101	Transistor, NPN, 2N2484	480023	R 110	Resistor, 15K ohm, 1/2 watt	476315
Q 102	Transistor, PNP, 2N4248	480032	R 111	Resistor, 15K ohm, 1/2 watt	476315
Q 103	Transistor, NPN, 2N2484	480023	R 112	Potentiometer, 100K ohm, Dual	475044
Q 104	Field Effect Transistor, N-Channel, 2N5457	480024	R 113	Resistor, 2.2K ohm, 1/2 watt	476222
Q 105	Field Effect Transistor, P-Channel, 2N4360	480033	R 114	Resistor, 10K ohm, 1/2 watt	476310
Q 106	Transistor, NPN, 2N2484	480023	R 115	Resistor, 560K ohm, 1/2 watt	476456
Q 107	Transistor, PNP, 2N4248	480032	R 116	Resistor, 82K ohm, 1/2 watt	476382
Q 108	Transistor, NPN, 2N2484	480023	R 117	Resistor, 47 ohm, 1/2 watt	476047
Q 109	Transistor, PNP, 2N4248	480032	R 118	Resistor, 100K ohm, 1/2 watt	476410
Q 110	Field Effect Transistor, N-Channel, 2N5457	480033	R 119	Resistor, 22K ohm, 1/2 watt	476322
Q 111	Field Effect Transistor, P-Channel, 2N4360	480033	R 120	Resistor, 33K ohm, 1/2 watt	476333
CR101	Diode, 1N914	480005	R 121	Resistor, 4.7K ohm, 1/2 watt	476247
CR102	Diode, 1N914	480005	R 122	Resistor, 47K ohm, 1/2 watt	476347
CR103	Diode, 1N914	480005	R 123	Resistor, 2.2K ohm, 1/2 watt	476222
L 101	Inductor, 6H	180007	R 124	Resistor, 1M ohm, 1/2 watt	476510
C 101	Capacitor, .47mf, Mylar, 100V	151008	R 125	Resistor, 1M ohm, 1/2 watt	476510
C 102	Capacitor, 68pf, Disc, 1KV	151002	R 126	Potentiometer, 100K ohm, Log	475040
C 103	Capacitor, .001mf, Disc, 500V	152029	R 127	Resistor, 1M ohm, 1/2 watt	476510
C 104	Capacitor, .47mf, Mylar, 100V	153002	R 128	Resistor, 10K ohm, 1/2 watt	476310
C 105	Capacitor, 10mf, Electrolytic, 50V	153002	R 129	Resistor, 220K ohm, 1/2 watt	476422
C 106	Capacitor, .47mf, Mylar, 100V	152029	R 130	Resistor, 56K ohm, 1/2 watt	476356
C 107	Capacitor, .47mf, Mylar, 100V	152015	R 131	Resistor, 68K ohm, 1/2 watt	476368
C 108	Capacitor, .1mf, Mylar, 100V	151001	R 132	Resistor, 2.2K ohm, 1/2 watt	476222
C 109	Capacitor, 22pf, Disc, 1KV	152029	R 133	Resistor, 1.2K ohm, 1/2 watt	476212
C 110	Capacitor, .47mf, Mylar, 100V	152013	R 134	Resistor, 3.3K ohm, 1/2 watt	476233
C 111	Capacitor, .047mf, Mylar, 100V	152029	R 135	Potentiometer, 50K ohm, w/Step	475043
C 112	Capacitor, .47mf, Mylar, 100V	153001	R 136	Resistor, 3.3K ohm, 1/2 watt	476233
C 113	Capacitor, 1mf, Electrolytic, 50V	152029	R 137	Resistor, 5.6K ohm, 1/2 watt	476256
C 114	Capacitor, .47mf, Mylar, 100V	151012	R 138	Potentiometer, 50K ohm, 1/2 watt	475043
C 115	Capacitor, .005mf, Disc, 500V	153001	R 139	Resistor, 5.6K ohm, 1/2 watt	476256
C 116	Capacitor, 1mf, Electrolytic, 50V	151003	R 140	Resistor, 3.3K ohm, 1/2 watt	476233
C 117	Capacitor, 100pf, Disc, 1KV	153015	R 141	Potentiometer, 50K ohm, w/Step	475043
C 118	Capacitor, .47mf, Electrolytic, 50V	152009	R 142	Resistor, 3.3K ohm, 1/2 watt	476233
C 119	Capacitor, .022mf, Mylar, 100V	152007	R 143	Resistor, 22K ohm, 1/2 watt	476322
C 120	Capacitor, .012mf, Mylar, 100V	152006	R 144	Resistor, 100K ohm, 1/2 watt	476410
C 121	Capacitor, .01mf, Mylar, 100V	152015	R 145	Resistor, 2.2K ohm, 1/2 watt	476222
C 122	Capacitor, .47mf, Mylar, 100V	153015	R 146	Resistor, 470K ohm, 1/2 watt	476447
C 123	Capacitor, 4.7mf, Electrolytic, 50V	153001	R 147	Resistor, 47K ohm, 1/2 watt	476347
C 124	Capacitor, 1mf, Electrolytic, 50V	152019	R 148	Resistor, 4.7K ohm, 1/2 watt	476247
C 125	Capacitor, 1mf, Electrolytic, 50V	154004	R 149	Resistor, 6.8K ohm, 1/2 watt	476268
C 126	Capacitor, .22mf, Mylar, 75V	476347	R 150	Resistor, 180 ohm, 1/2 watt	476118
C 127	Capacitor, 1mf, Tantalum, 35V	476322	R 151	Resistor, 2.2K ohm, 1/2 watt	476222
R 101	Resistor, 47K ohm, 1/2 watt	476591	R 152	Resistor, 1K ohm, 1/2 watt	476210
R 102	Resistor, 22K ohm, 1/2 watt	476268	R 153	Resistor, 100K ohm, 1/2 watt	476410
R 103	Resistor, 9.1M ohm, 1/2 watt	476447	R 154	Resistor, 220K ohm, 1/2 watt	476422
R 104	Resistor, 6.8K ohm, 1/2 watt	476310	R 155	Potentiometer, 500K, Log	475041
R 105	Resistor, 470K ohm, 1/2 watt	476156			
R 106	Resistor, 10K ohm, 1/2 watt	476310			
R 107	Resistor, 560 ohm, 1/2 watt	476310			
R 108	Resistor, 10K ohm, 1/2 watt	476310			

PARTS LIST
MODEL 450 - POWER AMP CIRCUIT BOARD ASSEMBLY 830029
SCHEMATIC 1447A

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB4	Printed Circuit Board	170051
Q 401	Transistor, PNP, 2N4248	480032
Q 402	Transistor, PNP, 2N4248	480032
Q 403	Transistor, NPN, MJE 341	480039
Q 404	Transistor, PNP, w/Heatsink	480041
Q 405	Transistor, NPN, w/Heatsink	480040
Q 406	Transistor, NPN, Driver, Negative	480037
Q 407	Transistor, NPN, Driver, Positive	480037
Q 408	Transistor, NPN,	480037
Q 409	Transistor, NPN,	480037
Q 410	Transistor, NPN,	480037
Q 411	Transistor, NPN,	480037
Q 412	Transistor, PNP, 2N4248	480032
Q 413	Transistor, NPN, MPS A06	480038
Q 414	Transistor, NPN, Regulator, 40409	480006
Q 415	Transistor, NPN, Bias, MPS A06	480038
CR401	Diode, 1N914	480005
CR402	Diode, 1N914	480005
CR403	Diode, 1N914	480005
DR404	Diode, 1N914	480005
CR405	Diode, 1N914	480005
CR406	Diode, 1N914	480005
CR407	Diode, 1N914	480005
CR408	Diode, 1N4003, (170045 bd only)	480028
CR409	Diode, 1N4003, (170045 bd only)	480028
CR410	Diode, 1N4003,	480028
CR411	Diode, 1N4003,	480028
CR412	Diode, Zener, 1N4754, HW39B	480022
C 401	Capacitor, .47mf, Mylar, 100V	152029
C 402	Capacitor, .47mf, Mylar, 100V	152029
C 403	Capacitor, 100mf, Electrolytic, 50V	153006
C 404	Capacitor, 10mf, Electrolytic, 50V	153002
C 405	Capacitor, 22mf, Electrolytic, 50V	153004
C 406	Capacitor, 470pf, Disc, 500V	151006
C 407	Capacitor, 470pf, Disc, 500V	151006
C 408	Capacitor, .1mf, Mylar, 250V	152026
C 409	Capacitor, 2000 mf, Electrolytic, 80V	153023
C 410	Capacitor, 330pf, Disc, 500V	151005
C 411	Capacitor, 330pf, Disc, 500V	151005
C 412	Capacitor, .01mf, Mylar, 250V	152031
C 413	Capacitor, 4.7mf, Electrolytic, 50V	153015
C 414	Capacitor, 220mf, Electrolytic, 50V	153008
C 415	Capacitor, 220mf, Electrolytic, 50V	153008
C 416	Capacitor, 470pf, Disc, 500V	151006
C 415	Capacitor, 330pf, Disc, 500V	151005
R 401	Resistor, 4.7K ohm, 1/2 watt	476247
R 402	Resistor, 100K ohm, 1/2 watt	476410
R 403	Resistor, 100K ohm, 1/2 watt	476410
R 404	Resistor, 2.2K ohm, 1/2 watt	476222
R 405	Resistor, 47K ohm, 1/2 watt	476347
R 406	Trimpot, 10K ohm, (170045 bd only)	475047

Schematic Reference	DESCRIPTION	Acoustic Part No.
R 407	Resistor, 4/K ohm, 1/2 watt	476347
R 408	Resistor, 18K ohm, 1/2 watt	476318
R 409	Resistor, 10K ohm, 1/2 watt	476310
R 410	Resistor, 2.2K ohm, 1/2 watt	476222
R 411	Resistor, 1K ohm, 1/2 watt	476210
R 412	Resistor, 100K ohm, 1/2 watt	476410
R 413	Resistor, 150 ohm, 1/2 watt	476115
R 414	Resistor, 100K ohm, 1/2 watt	476410
R 415	Resistor, 33 ohm, 1/2 watt	476333
R 416	Trimpot, 100 ohm, (170045 bd only)	475045
R 417	Resistor, 1.5K ohm, 1/2 watt	476215
R 418	Resistor, 3.3K ohm, 1/2 watt	476233
R 419	Resistor, 100 ohm, 1/2 watt	476110
R 420	Resistor, 100 ohm, 1/2 watt	476110
R 421	Resistor, 100 ohm, 1/2 watt	476110
R 422	Resistor, 100 ohm, 1/2 watt	476110
R 423	Resistor, 1 ohm, 1/2 watt	478001
R 424	Resistor, 1 ohm, 3 watt	464910
R 425	Resistor, 1 ohm, 3 watt	464910
R 426	Resistor, .24 ohm, 7 watt	461005
R 427	Resistor, .24 ohm, 7 watt	461005
R 428	Resistor, .24 ohm, 7 watt	461005
R 429	Resistor, .24 ohm, 7 watt	461005
R 430	Resistor, .1 ohm, 7 watt	461004
R 431	Resistor, .1 ohm, 7 watt	461004
R 432	Resistor, 47 ohm, 5 watt	463047
R 433	Resistor, .03 ohm, 5 watt	463730
R 434	Resistor, 1K ohm, 1/2 watt	476210
R 435	Resistor, 1K ohm, 1/2 watt	476210
R 436	Resistor, 2.2K ohm, 1/2 watt	476222
R 437	Resistor, 2.2K ohm, 1/2 watt	476222
R 438	Resistor, 560 ohm, 5 watt	463156
R 439	Resistor, 4.7K ohm, 2 watt	472247
R 440	Resistor, 150 ohm, 1/2 watt	476115
R 441	Resistor, 47K ohm, 1/2 watt	476347
R 442	Resistor, 47K ohm, 1/2 watt	476347
R 443	Resistor, 3.9K ohm, 1/2 watt	476239
R 444	Resistor, 3.9K ohm, 1/2 watt	476239
R 445	Resistor, 680 ohm, 1/2 watt	476168

PARTS LIST
MODEL 450 - GRAPHIC EQ ASSEMBLY 830025
SCHEMATIC 1447A

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB3	Printed Circuit Board	170044
Q 301	Transistor, NPN, 2N2484	480023
Q 302	Transistor, NPN, 2N2484	480023
Q 303	Transistor, NPN, 2N2484	480023
Q 304	Transistor, PNP, 2N4248	480032
L 301	Inductor, 1.5H	180002
L 302	Inductor, 1.5H	180002
L 303	Inductor, 750MH	180005
L 304	Inductor, 375MH	180004
L 305	Inductor, 375MH	180004
C 301	Capacitor, .1mf, Mylar, 100V	152015
C 302	Capacitor, 100pf, Disc, 1KV	151003
C 303	Capacitor, 3.3mf, Tantalum	154007
C 304	Capacitor, .82mf, Mylar, 250V	152030
C 305	Capacitor, .39mf, Mylar, 250V	152028
C 306	Capacitor, .10mf, Mylar, 250V	152026
C 307	Capacitor, .01mf, Mylar, 250V	152031
C 308	Capacitor, 100pf, Disc, 1KV	151003
C 309	Capacitor, 68pf, Disc, 1KV	151002
C 310	Capacitor, 470pf, Disc, 500V	151006
C 311	Capacitor, 50mf, Electrolytic, 50V	153005
C 312	Capacitor, .01mf, Mylar, 100V	152031
R 301	Resistor, 220K ohm, 1/2 watt	476422
R 302	Resistor, 470K ohm, 1/2 watt	476447
R 303	Resistor, 10K ohm, 1/2 watt	476310
R 304	Resistor, 5.6K ohm, 1/2 watt	476256
R 305	Slide Potentiometer, 50K ohm	475039
R 306	Slide Potentiometer, 50K ohm	475039
R 307	Slide Potentiometer, 50K ohm	475039
R 308	Slide Potentiometer, 50K ohm	475039
R 309	Slide Potentiometer, 50K ohm	476147
R 310	Resistor, 470 ohm, 1/2 watt	476133
R 311	Resistor, 330 ohm, 1/2 watt	476147
R 312	Resistor, 470 ohm, 1/2 watt	476147
R 313	Resistor, 470 ohm, 1/2 watt	476127
R 314	Resistor, 270 ohm, 1/2 watt	476268
R 315	Resistor, 6.8K ohm, 1/2 watt	476318
R 316	Resistor, 18K ohm, 1/2 watt	476256
R 317	Resistor, 5.6K ohm, 1/2 watt	476247
R 318	Resistor, 4.7K ohm, 1/2 watt	476347
R 319	Resistor, 47K ohm, 1/2 watt	476347

PARTS LIST
MODEL 450 - CHASSIS WIRING
SCHEMATIC 1447A

Schematic Reference	DESCRIPTION	Acoustic Part No.
T 501	Transformer, Supply	560015
BR501	Bridge Rectifier 10A	480019
C 501	Capacitor, .02mf U.L.	155001
C 503	Capacitor, 7800mf, Electrolytic, 100V	153013
L 501	Choke, 3.0MHY	180010
P 501	A/C Line Cord	600054
P 501	Fuse, 7A Pigtail	510031
P 502	Fuse, 5A SB	510005
J 501	Jack, N/Closed	210003
J 502	Jack, N/Closed	210003
J 503	Jack, Footswitch	210027
J 504	Jack, Line Out	210002
J 505	Jack, Access In/Out	210039
J 506	A/C Outlet	210052
J 507	Jack, Speaker Out	210002
J 508	Jack, Speaker Out	210002
J 509	Jack, Booster Out	210002
S 501	Switch, BRT	510017
S 502	Switch, Power On/Off	510016
S 503	Switch, Ground Reverse	510017
S 506	Switch, Lead/Bass	510017
R 501	Resistor, 4.7K ohm, 1/2 watt	476247
R 502	Resistor, 4.7K ohm, 1/2 watt	476247
R 503	Resistor, 680 ohm, 1/2 watt	476168
R 504	Resistor, 33K ohm, 1/2 watt	476333